

# **Deforestation and Opposition to Scientific Forest Management in 19th-Century Australia, Canada, New Zealand and the United States: Lessons for the Climate Change Debate**

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*The 19th century saw the rapid cutover of native forests in Australia, Canada, New Zealand and the United States. Due to concerns about deforestation, there arose a nascent conservation movement, which publicised the adverse environmental effects of the cutover, fire, wasteful logging practices, and the importance of sustainable forestry practices. Through an examination of the arguments opposing scientific forestry management and conservation, this article discusses how conservation and economic development were understood and changed in the Anglo-American political economy of the 19th and early 20th centuries. The article argues that these 19th-century debates echo opposition to climate mitigation policy today. It concludes that climate mitigation proponents must reconceptualise the notion of public interest and create a more cohesive narrative regarding the desirability of climate mitigation policies.*

## **1. INTRODUCTION**

The 19th century saw the rapid cutover of native forests in Australia, Canada, New Zealand and the United States. Initially, these forests were considered an impediment to settlement as well as an inexhaustible resource to be exploited

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for settlement and economic development. However, as the century progressed there was an increasing awareness of the acute environmental degradation and economic loss that accompanied the headlong clearing. Due to these concerns, there arose a nascent conservation movement, which publicised the adverse environmental effects of the cutover and fire, wasteful logging practices, and the importance of sustainable forestry practices. These advocates called for the implementation of sustainable forest management policies and led efforts to conserve or preserve the remaining forest.

This article argues that many of the issues that confronted policy-makers regarding deforestation and afforestation in the 19th and early 20th centuries in Australia, Canada, New Zealand and the United States exhibited similar characteristics to the problems in the climate change debate. Through an examination of the arguments opposing scientific forestry management and conservation, this article discusses how deforestation, conservation and economic development were understood in the dynamic Anglo-American political economy of the 19th and early 20th centuries. As Belich has noted, this “Anglo-world” of Australia, Canada, New Zealand and the United States was a transcontinental transnational entity that, while politically divided, “comprised a shifting, varied ... interconnected melange of partners and subjects”.<sup>1</sup> While local social, cultural, economic and normative perspectives varied across localities, the debates surrounding deforestation and desirability of scientific management were part of a “common language” shared across these settlement areas. This common language, as Weaver points out, allowed, endorsed and justified the acquisition of property rights and the utilisation of natural resources across the colonial Anglo-world. It influenced how populations and elites understood the impacts of the cutover and the various policy proposals to respond to it.<sup>2</sup> The article argues that unlike forest conservation policy, climate mitigation policy does not require a reconceptualisation of public power and economic development analogous to the one which occurred at the turn of the century relating to forest policy. It concludes that climate mitigation proponents must reconceptualise the notion of public interest and create a more cohesive narrative regarding the desirability of climate mitigation policies in a manner similar to forest conservation advocates.

1 James Belich *Replenishing the Earth: The Settler Revolution and the Rise of the Anglo-World, 1783–1939* (Oxford University Press, Oxford, 2009) at 49.

2 See John C Weaver *The Great Land Rush and the Making of the Modern World, 1650–1950* (McGill-Queen’s University Press, Montreal, 2003); Ann McGrath “A Historical Panorama” (2021) 93 *The Canadian Historical Review* 278.

## 2. FOREST CONSERVATION AND SETTLEMENT

The dense forests that greeted European settlers as they spread across Australia, New Zealand, Canada and the United States embodied an existential and philosophical challenge. While there existed in European thought a romantic idea of natural wilderness, the notion found little traction in early settlement communities.<sup>3</sup> On one hand, the dark dense forests were the epitome of wilderness as barbarism and waste.<sup>4</sup> As Arthur Clayton noted in his book providing advice to New Zealand immigrants: “If you do ‘go into the bush’, meaning really going in for country life, be on your guard against the common danger of relapsing into barbarism.”<sup>5</sup> This barbarism was best combatted by replacing the forests with human settlements, cultivated fields and pastoralism. Cutting the forest and transforming the land into open fields was a process of spiritual improvement. “If you find your mind, your heart to be a wilderness”, the New Zealand Wesleyan missionary Cort Schnackenberg told his congregation in 1841, “cultivate it in the same manner as you do your fields, cut down the bush, great and small — spare no sin”.<sup>6</sup> As Kelly notes about the settlers of Ontario:<sup>7</sup>

Settlers stripped the trees from their land as quickly as possible ... They attacked the forest with a savagery greater than that justified by the need to clear the land for cultivation, for the forest smothered, threatened, and oppressed them.

On the other hand, the forests offered seemingly inexhaustible material for settlement and economic development.<sup>8</sup> Settlers used wood for firewood,

3 See Diamando Diamantakos “Private Property Deforestation and Regeneration and the Clerk of Forestry in Nineteenth-Century Ontario” (1997) 21 *Scientia Canadensis* 29 at 31.

4 This European attitude towards property and wilderness also can be contrasted with indigenous attitudes to these areas. Alexander Douglas Young “Wastelands ‘Which Might Doubtless Easily Be Drained’: A Contextual Study of the Drainage of the Hauraki Plains” (2020) 24 *NZJEL* 247.

5 Arthur Clayden *Popular handbook to New Zealand, its resources and industries* (Wyman and Sons, London, 1886) at 225 quoted from “Attitudes Towards the Bush” in *Te Ara — the Encyclopedia of New Zealand* <<https://teara.govt.nz/en/the-new-zealand-bush/page-2>>.

6 Catherine Knight “The Paradox of Discourse Concerning Deforestation in New Zealand: A Historical Survey” (2009) 15 *Environment and History* 323 at 326.

7 Kenneth Kelly “The Changing Attitude of Farmers to Forest in Nineteenth Century Ontario” (1974) 8 *Ontario Geographers* 64.

8 In 1852, for example, Wisconsin Congressman Ben Eastman informed the House of Representatives that “Upon the rivers which are tributary to the Mississippi, and also upon those which empty themselves into Lake Michigan, there are

fencing and other building materials. Lumber could be exported to generate scarce cash, and governments could sell cutting rights to raise revenue or as an inducement for development. Indeed, the pervasiveness of the forest as a source of material for human use was a common experience across much of the early frontier.

With the widespread use, and revenue and economic development imperatives in mind, governments (colonial, state and national) produced numerous laws, regulations and orders that sought to exercise some control over cutting. Nevertheless, these measures were generally ineffective and did little to diminish the cutover, minimise fire and waste, or maximise revenue. This ineffectiveness was unsurprising given the widely held idea that the socio-economic and environmental transformations accompanying development demonstrated the progression of human development and civilisation; a notion reflected by New Zealand Premier Richard Seddon's claim in 1894 that "every tree" felled meant an improvement of the public estate of the country.<sup>9</sup> In short, development of the frontier was both a fact and an attitude; and deforestation as part of the developmental process was seen "as an engine for both social progress and individual material improvement".<sup>10</sup>

This attitude towards the frontier and the underlying political economy inevitably led to significant loss of forests. In most frontier and settlement economies the key to economic and social development was the agricultural productivity of the soil. Where forests impeded agriculture and pastoralism, they were removed.<sup>11</sup> Indeed, the major cause of deforestation was the clearing of land for farming and pasture, and initial phases of deforestation would have probably occurred even without the large-scale lumber industry. Nevertheless, the idea that the destruction of the forest was wholly beneficial could exist only as long as the destruction existed within an apparent plenitude of forest. More importantly, the attitude assumed that there existed fecund deforested agricultural land or that the continued loss of forest cover would not adversely impact the productivity of previously cleared land and other economic activity.

interminable forests of pine, sufficient to supply all the wants of the citizens ... for all time to come" (Congressional Globe, 1851–52); Charles E Twining "The Lumbering Frontier" in Susan L Flader (ed) *The Great Lakes Forest: An Environmental and Social History* (University of Minnesota Press, Minneapolis, 1983) 121 at 121.

9 Tom Brooking and Eric Pawson "The Contours of Transformation" in Tom Brooking and Eric Pawson (eds) *Seeds of Empire: The Environmental Transformation of New Zealand* (IBTauris, London & New York, 2011) 13 at 19.

10 Twining, above n 8, at 130. See Stephan Marl Legg "Views from the Antipodes: the 'forest influence' debate in the Australian and New Zealand press, 1827–1956" (2018) 1 *Australian Geographer* 41 at 49.

11 LT Carron *A History of Forestry in Australia* (Australian National University Press, Canberra, 1985) at 4.

It was a concern with climate change, lower stream flows and the consequent loss of agricultural productivity, first voiced in 18th-century America and Arcadia, and later in New Zealand and the Australian colonies, that drove initial opposition to forest clearing.<sup>12</sup> As the century progressed, concerns led to numerous studies on the cutover's deleterious effects and calls for regulation. These concerns were both utilitarian — ie to encourage sustainable management of the forest estate — as well as preservationist — which sought to preserve untouched wilderness and minimise human impacts. Activists were also concerned with waste of the public estate, of which standing timber represented a sizable asset. In North America there were numerous early articles about the adverse effects of deforestation.<sup>13</sup> Several magazines, starting with the *Canadian Monthly Magazine* in 1871, *The Nation* and the *North American Review*, published articles.<sup>14</sup> In Australia and New Zealand, media played a prominent role in the debates concerning the effects of forests on the climate.<sup>15</sup> Knight notes that a survey of newspapers in New Zealand dating from 1840 to 1915 reveals “not infrequent” coverage of deforestation issues.<sup>16</sup>

The local efforts against deforestation did not just focus on local environmental and economic concerns, but included a broad range of international data and commentary on the deleterious effects of the cutover. For example, the 1865 Report on the Advisableness of Establishing State Forests in Victoria (Australia) cites effects of deforestation in 12 different states or colonies and six different international authors to support its calls for legislative action.<sup>17</sup> The 1874 New Zealand Premier Julius Vogel's Second Reading speech before the New Zealand Parliament regarding the proposed New Zealand Forests Act ran to over 10,000 words, and cited information and reports on problems with excessive cutover from over 14 different jurisdictions.<sup>18</sup> In the United States, an 1867 report tabled in the Wisconsin legislature cited several neighbouring American states and eight international jurisdictions in its discussion.<sup>19</sup>

12 Jamie H Eves “‘Shrunk to a Comparative Rivulet’: Deforestation, Stream Flow, and Rural Milling in 19th-Century Maine” (1992) 33 *Technology and Culture* 38.

13 John Ise *The United States Forest Policy* (Yale University Press, New Haven, 1920) at 26–30.

14 At 93–94.

15 Graeme Wynn “Pioneers, politicians and the conservation of forests in early New Zealand” (1979) 5 *Journal of Historical Geography* 171.

16 Catherine Knight “The Paradox of Discourse Concerning Deforestation in New Zealand: A Historical Survey” (2015) 15 *Environment and History* 323 at 329.

17 *Report on the advisableness of establishing state forests* by the Surveyor-General, the Assistant Commissioner of Lands and Survey, and the Secretary for Mines (Government Printer, Melbourne, 1865).

18 New Zealand Parliament [House], Forests Bill 1874 at 79–94.

19 Increase Allen Lapham “Report on the disastrous effects of the destruction of

Government action followed these concerns. Many American states appointed state forestry commissioners charged with the task of determining appropriate forest and land policies. Other American states initiated studies on the impacts that cutting had had on environment and to determine whether current land and forestry policies were appropriate.<sup>20</sup> Ontario and Quebec enacted legislation to encourage tree planting on agricultural lands, and on the heels of the second 1882 Congress of the American Forestry Association meeting in Montreal, took some tentative (though unsuccessful) steps to establish forest reserves.<sup>21</sup> In 1868, Thomas Potts, a member of the New Zealand House of Representatives, moved: “That it is desirable Government should take steps to ascertain the present condition of the forests of the Colony, with a view to their better conservation.”<sup>22</sup> In 1865 a Special Committee established in Victoria issued a report in the wake of the heavy settlement near the goldfields to investigate forest conservation. The Report outlined the waste of forests then occurring in Victoria as well as the beneficial economic, climatic and drainage effects of forests and the importance of good forest management.<sup>23</sup> It argued that the continued access to cheap, high-quality timber was a precondition for continued prosperity and that forests improve the retention of water.

As the century progressed, concerns about deforestation revolved around five issues in the Australian colonies, New Zealand, Canada and the United States. First, the opponents of cutting argued that the maintenance of forested areas in agricultural areas was necessary due to the beneficial effects trees and forested lots had on crop productivity. Proponents argued that the extensive clearcutting across agricultural lands would adversely affect the soil and climate. Deforestation caused increased heat in the summer, more intense cold in winter, allowed winds to blow unimpeded across cropland, and affected rain and water retention. The declining productivity would slow settlement and have significant knock-on effects across the local and wider economy. These concerns were reflected in a series of laws and regulations to conserve forest blocks in agricultural areas; or to encourage afforestation such as Ontario’s 1883 Tree Planting Act, the federal Timber Culture Act of 1873 in the United

forest trees, now going on so rapidly in the state of Wisconsin” (Atwood and Rublee, State Printers, Madison, 1867).

20 Ise, above n 13, at 96–98.

21 Bruce Hodgins, Jamie Benidickson and Peter Gillis “The Ontario and Quebec experiments in forest reserves, 1883–1930” (1982) 26 *Journal of Forest History* 20.

22 Paul Star “Thomas Potts and the Forest Question: Conservation and Development in New Zealand in the 1860s” (2015) 1 *International Review of Environmental History* 173.

23 Victoria, 1864–5 No 77 *Report on the Advisableness of Establishing State Forests* <<https://www.parliament.vic.gov.au/papers/govpub/VPARL1864-65No77.pdf>>.

States, and the 1873 Forest Trees Act No 26 in South Australia which provided incentives for landowners to plant trees.

Second, forest proponents argued that the rapid cutover had significant deleterious economic and social effects on local communities due to the exhaustion of available timberlands. The lack of timber would slow development, increase costs to settlers for building materials and heating, as well as increase the cost of constructing railroads. In these circumstances, laws regulating the scope of timber licences in Canada, New Zealand and Australia and the creation of forest reserves were proposed. In the United States, which subscribed to a land policy that sought to rapidly transfer public lands into private ownership, there was discussion about preserving public lands as forest reserves. In the British colonies, timber licensing systems were particularly criticised. For example, the 1874 report by the Victorian Minister of Lands and Agriculture stated that “no more effectual method of legalising the destruction of timber could have been devised” than the timber licencing system then in place.<sup>24</sup> In New Zealand, these efforts led the national government to propose a conservation regime seeking to protect about 10 per cent of the remaining forestland in 1874.<sup>25</sup>

Third, it was evident that various areas were not amenable to agricultural production and settlement after the cutover. This problem was exacerbated by fire, which plagued relatively unsettled logged areas. These cutover lands held a particular policy challenge for various governments. While a testimony to the failure of governmental development and land policies, the cutover areas required the development of scientific and administrative expertise and land tenure schemes to undertake extensive afforestation efforts. At the same time, the loss of harvestable timber and the lack of development after the cutover led to less revenue and social conflict.

Fourth, the movement was concerned about timber theft, fraud, wastage and fire associated with logging practices. There was extensive wastage in many 19th-century operations due to the high value of the labour, the relative abundance of high-quality timber and the perambulatory nature of logging operations; many companies moved to new uncut areas (abandoning the now cutover properties) rather than managing the forests as private landowners.

24 Carron, above n 11, at 180.

25 Due to opposition the final New Zealand Forests Act 1874 stripped out most of the protective aspects of the Bill but did set aside £10,000 annually for forest management while creating a Conservator of Forests and a Forestry Department. The Act was repealed after two years, but the reservation of half a million acres of highland forest for their beneficial effects on the climate (among other reasons) in the 1877 Lands Act was in part the result of the then defunct Conservator of Forests' efforts. The issue of forest conservation returned with Vogel as Treasurer in 1885 in the form of the New Zealand State Forests Act.

Willard Hurst observes that perhaps two-thirds of the timber in Wisconsin was wasted by the lumber companies.<sup>26</sup> The fires that followed industrial logging operations were a particular problem.<sup>27</sup>

Finally, concerns about cutting arose due to a rising preservationist movement. Preservationist sentiments had some pragmatic arguments such as the preservation of watersheds, but the impetus behind preservation was based on the non-utilitarian value of the forest wilderness itself, and the importance undisturbed wilderness had for the human spirit and recreation. As John Muir noted: "The clearest way into the Universe is through a forest wilderness."<sup>28</sup> In Australia and New Zealand, this movement revolved around a growing appreciation of the unique flora and fauna and wilderness in the Antipodes. The loosening of emotional ties to Britain, the concomitant rise of an incipient indigenous nationalism, and the significant transformation of the landscape that had already occurred, led to a growing appreciation of the value and need to preserve some aspects of native forest. In New Zealand, this preservationist notion, based on the idea that the bush was what made New Zealand "special", supported the creation of 1.2 million hectares of permanent reserve by 1909.<sup>29</sup> In the United States and Canada, the movement created national parks (eg Yellowstone, Banff) and the legislative basis to set aside wilderness areas. While the enacted forest legislation arising around the turn of the century had a decidedly conservationist approach, the preservation of forest was a value explicitly incorporated in early legislation and became an important aspect of forest management.

The objections to the cutover based on preservationist impulses, environmental change, waste, fire, subsidies, legal innovations, and public inducements to facilitate cutting and settlement involved a growing appreciation of the public wealth/capital/spiritual value represented by the forests; and entailed reconsideration of several fundamental assumptions that drove the settlement project a generation earlier.<sup>30</sup> For the 19th-century "Progressive" movement, anti-cutting measures were part of a programme which questioned the

26 James Willard Hurst *Law and Economic Growth: The Legal History of the Lumber Industry in Wisconsin, 1836–1915* (2nd ed, University of Wisconsin Law School, Madison, 1984) at 430–433.

27 NH Egleston "Methods and Profit of Tree-Planting" (1982) 21 *Popular Science Monthly* 1 in Donald J Pisani "Forests and Conservation, 1865–1890" (1985) 72 *Journal of American History* 340 at 344.

28 Roderick Nash *Wilderness and the American Mind* (Yale University Press, New Haven, 1967) at 126.

29 Paul Star "New Zealand Environmental History: A Question of Attitudes" (2003) 9 *Environment and History* 463 at 469.

30 See G Wynn "Destruction under the guise of improvement: The forest, 1840–1920" in Eric Pawson and Tom Brooking (eds) *Environmental History of New Zealand* (Oxford University Press, Melbourne, 2002) 100.



developmental and settlement models that relied upon private decision-making and public subsidies. This programme fed into a changing notion of what constituted the “public interest” and the material objectives of law- and policy-making. In short, forest conservation was not simply about using the forest resources and scientific management, it was part of a new “progressive” vision of society where the benefits of economic development would be more equally distributed and sustainably managed.<sup>31</sup>

For most of the 19th century, the model of economic development embraced by policy-makers along the frontier subscribed to the idea that economic development and progress could best be achieved through the utilisation of public resources or capital through private enterprise and individual initiative (by way of grants, concessions or subsidies) using the market. These models privileged agriculture, pastoralism and natural resource development such as mining; and assumed that the public interest and “progress” would be best effectuated through the private decision-making and private exploitation of public resources. In early phases of colonial exploitation, the model emphasised the government’s role as a promoter, including the provision of public resources for private development initiatives, while in later phases it required the development of a regulatory apparatus to oversee the development of public resources by private interests.

Nevertheless, throughout the 19th century, private decision-making and enterprise were considered necessary to “efficiently” use public resources. While appropriating the public domain and the forests, private enterprise worked with the government to facilitate development and exploit natural resources. Through the 19th century, deference to private decision-making also meant little elaboration of specific public developmental outcomes by government. For the most part, public ownership over the resources “was not used to assert any major public claim on the natural resource development process”.<sup>32</sup> Except in a few areas such as energy, publicly owned corporations and publicly owned natural resource extractive enterprises were considered by settler elites to be an inappropriate method of state development.<sup>33</sup>

31 John Freemuth “The Progressive Movement and Conservation (1890s – Present)” in Sally K Fairfax and Edmund Russell (eds) *Guide to U.S. Environmental Policy* (CQ Press SAGE, London, 2014) 129 at 134–135.

32 HV Nelles *Politics of Development: Forests, Mines, and Hydro-Electric Power in Ontario, 1849–1941* (McGill-Queen’s University Press, Montreal & Kingston, 2005) at 491.

33 Sidney L Harring and Barry R Strutt “Review: Lumber, Law, and Social Change: The Legal History of Willard Hurst” (1985) 10 *American Bar Foundation Research Journal* 123.

### 3. ARGUMENTS IN OPPOSITION TO FOREST CONSERVATION POLICIES

The concerns outlined above led to little policy innovation until the problems of deforestation became so acute that they could not be ignored. Hurst argues this inaction or “drift” occurred because the issue did not rise to the conscious realisation of policy-makers, or if extensive cutting was recognised as a problem, it was seen as beyond the institutional capacities of the respective governments to solve. In short, the issue simply was not “conceived of” as a problem.<sup>34</sup> Alternatively, governmental inactivity suggests an underlying social consensus regarding the superiority of the private entrepreneurial extractive development model. As discussed above, this developmental approach privileged policy-making and legal innovation/protection in favour of settlement and private enterprise, limiting the range of policy options. It also militated against popular efforts to conserve the forest and embrace scientific management. Efforts to conserve the forest from this perspective were secondary to economic development and settlement. As noted by the 1908 New South Wales Royal Commission of Inquiry on Forests:<sup>35</sup>

[P]robably no section of business under Government control has experienced greater vicissitudes in management or less consideration than that connected with our forests. No attempt appears to have been made to lay down a policy of management and apparently as each responsible department became tired of the business, or failed to succeed with it, it was passed on to another ... The protection of the forest domain appears to have been nearly always subordinated to the policy of settlement.

Yet the paucity of governmental action as the deleterious environmental, social and economic effects of the cutover became increasingly manifest, based on a limited store of ideas, resolution and energy, or organisational factors that precluded the implementation of policy, is not wholly explanatory. The continued cutting also demonstrates the political power of lumbering interests and an entrenched commitment in the various states to a social capital/laissez-faire developmental model, which subsidised or justified low-cost transfers of public resources to elite interests. From this perspective, the law and policy were imbricated with the institutional prerogatives of the developmental state and the socio-economic dominance of the lumber industry. As such, the underlying private initiative developmental model and the elite dominion of the

34 Hurst, above n 26, at 47.

35 New South Wales *Royal Commission of Inquiry on Forests* at ix, in Carron, above n 11, at 5.

political process to limit government regulation and interference with lumbering activities facilitated the cutover.<sup>36</sup>

Nevertheless, whether it was lack of consciousness, a social consensus over desirable economic models or elite power, opponents of efforts to slow the cutover proffered a number of objections to address critiques of forestry practices. These oppositional arguments supporting the laissez-faire status quo were sustained by major political and economic actors of the day. While they were premised on the particular economic, political and legal factors, they often reflected more elaborate historical narratives, legal or normative paradigms concerning a particular philosophy of politics and history, as well as various foundational myths of the society. These broader narratives and paradigms established “a set of ideas about what happens, what can be known and what [is] done” in a society, and successfully limited significant changes to land and forest policies or the application of scientific management to the forests until the end of the 19th century.<sup>37</sup>

### 3.1 Objections Based on the Alarmist Language Used

A significant amount of opposition to better forest management involved criticism of the language used and the calculations of rates of deforestation. In the United States, Canada and New Zealand, supporters of conservation and forest reserves argued that without action the countries would experience severe timber shortages. This impending “timber famine” would have enormous economic and social consequences, as evident from a speech by then President Theodore Roosevelt in 1905 to the American Forest Conference:<sup>38</sup>

Unless the vast forests of the United States can be made ready to meet the vast demands which this growth will inevitably bring, commercial disaster, that means disaster to the whole country, is inevitable. The railroads must have ties ... The miner must have timber ... If the present rate of forest destruction is allowed to continue, with nothing to offset it, a timber famine in the future is inevitable.

These calculations of “timber famine” involved a quantification of wood demand (present and in the future) in light of the existing stock of trees and

36 Mark Tushnet “Commentary: Lumber and the Legal Process” (1972) *Wisconsin Law Review* 114 at 131.

37 JGA Pocock *Politics, Language and Time: Essays on Political Thought and History* (Methuen & Co Ltd, London, 1972) at 233.

38 Sherry H Olson *The Depletion Myth: A History of Railroad Use of Timber* (Harvard University Press, Cambridge, 1971) at 1.

the rate of cutover. The projection made for some depressing reading.<sup>39</sup> For example, Frederick Starr Jr, in an essay “American Forests: Their Destruction and Preservation”, warned of “an impending national danger, beyond the power of figures to estimate, and beyond the province of words to express”. His calculation estimated that the clearcut would reach the size of California.<sup>40</sup> In 1877, American Secretary of the Interior Carl Schurz warned that within 20 years timber supply would “fall considerably short of our home necessities” at the existing rate of consumption.<sup>41</sup> New Zealand Premier Julius Vogel in his introduction to the 1874 Forests Bill noted that New Zealand would be without any timber resources in several decades without government action.

The jeremiads were often dismissed as alarmist and outrageous. Despite concerns, a large portion of the population and policy-makers simply believed that the present forested areas would continue to supply necessary needs without resort to measures to manage forests or set established forest reserves. Prohibition or the severe restriction of logging opportunities was not foreseen. For example, NZ Representative George Hunter disputed Vogel’s justification for the 1874 Forests Bill mentioned above, stating that despite the extensive cutover, the colony had the “resources and capabilities that will enable it to grapple with any difficulties that may arise in the future”.<sup>42</sup> This position was underscored by the personal views of many individuals across the frontier in all states who resented governmental intrusion and control of their use of the forest.<sup>43</sup> As Cameron notes, given that the forest had supplied numerous needs over the centuries, the notion of “inexhaustibility” of forest in the United States was “no longer merely a belief” of the average American. “[I]t was an enthusiastic conviction, it was almost ... a tenet of his religion.”<sup>44</sup>

### 3.2 Objections Based on Use of Science

Opponents of measures to control the cutover often argued that the science behind conservation claims was theoretically and empirically suspect. Since

39 John Mui “The American Forests” *The Atlantic* (August 1897).

40 Fredrick Starr Jr “American Forests: Their Destruction and Preservation” in *Report of the United States Commissioner of Agriculture, Commissioner of Agriculture for the Year 1865* <<https://archive.org/details/reportcommissio03agrigoog/page/n9>> at 210.

41 Pisani, above n 27, at 345.

42 (4 August 1874) 16 NZPD 411 (Hunter).

43 Erik Loomis “The battle for the body: Work and environment in the Pacific Northwest lumber industry, 1800–1940” (PhD Thesis, University of New Mexico, 2008) at 68–69.

44 Jenks Cameron *The Development of Governmental Forest Control in the United States* (Johns Hopkins University Press, Baltimore, 1928, Brown Reprints, nd) at 3–4.

the 18th century, there had been a literature which argued that “civilization and cultivation could modify, improve, and ameliorate climates”. And the presence or absence of trees was an important aspect of this climatic literature.<sup>45</sup> It was argued that the climatic effects of deforestation directly affected the ability of the cleared land to be used for agriculture and reforestation and/or as stores for water for further areas downstream. The claims made by proponents of forest management about the effects of clearcutting and land clearing were numerous — deforestation would adversely affect the climate, create erosion, create infertile soil, and affect short/long-term run-off and stream flow. Many supporters of this position argued that deforestation violated the fundamental laws of nature and would bring dire consequences to society. In addition, the claims also included “competing agricultural and forestry maxims” like “rain follows the plow” and “trees bring rain” which suggested differing policy options in areas that were particularly affected by variable and insufficient rainfall such as the Great Plains in North America and South Australia.<sup>46</sup> Given the perceived dire consequences, many “proponents often cloaked their language in hyperbole”.<sup>47</sup>

Over time and in particular areas, the purported effects of deforestation changed with improved technical expertise, scientific data and theorising. Nevertheless, the inherent uncertainty of this theorising and the subsequent disproof of early claims was effectively used by proponents of the status quo. First, they cited the inconclusive nature of the science. Beattie, for example, observes that a 1908 Australian inquiry established to determine whether forests influenced rainfall, along with 13 other papers published on the topic between 1906 and 1913, reached no consensus on the issue.<sup>48</sup> As noted by the Ontario Royal Commission on Forestry in 1899:<sup>49</sup>

The seemingly discordant and unsatisfying results, as to the influence of forests on precipitation, hitherto published as the results of scientific investigation in Europe seem to be based on data too brief, minute and altogether inadequate, to warrant the somewhat sweeping generalizations found in the reports.

45 Kirsty Douglas “‘For the sake of a little grass’: A Comparative History of Settler Science and Environmental Limits in South Australia and the Great Plains” in James Beattie and others (eds) *Climate, Science, and Colonization: Histories from Australia and New Zealand* (Palgrave Macmillan, New York, 2014) 99 at 105.

46 At 102.

47 Pisani, above n 27, at 340; James Beattie *Empire and Environmental Anxiety: Health, Science, Art and Conservation in South Asia and Australasia, 1800–1892* (Palgrave Macmillan, New York, 2011) at 173.

48 Beattie, above n 47, at 175.

49 *Report of the Royal Commission on Forestry Protection in Ontario 1896* at 25 <<https://archive.org/details/forestprotecomm00onta/page/24/mode/2up>>.

Both the lack of consensus as well the inability of science to predict more than approximate adverse effects on the climate, watersheds and other natural resources proved a significant hurdle for conservationists; a problem compounded by the provocative statements made to catch the public imagination.<sup>50</sup>

Second, proponents of the status quo argued that the generalised observations of the effects of deforestation were generally irrelevant given the local circumstances. For example, William Buckland, Representative for Franklin (NZ) believed that forests only exercised local climatic influence (as opposed to national influence) as part of his objection to the 1874 Forests Bill in New Zealand.<sup>51</sup> As no one path was responsible for the adverse environmental effects of deforestation, local objections based on the uniqueness of the circumstances were used to stymie policy.

Third, and related to the notion of local impacts, were arguments that suggested that the “knowledge” proffered by conservationists was “theoretical” — ie that it was not suited to the actual conditions and local knowledge possessed by settlers and loggers. Loomis points out the phenomenon in the Pacific Northwest of the USA:<sup>52</sup>

These feelings appeared throughout the industry during the early twentieth century. West Coast and Puget Sound Lumbermen editorialized against the creation of forest reserves in 1903, accusing the government of “going too far in the way of forest reservation.” “Even a good thing can be overdone.” “Why were they so zealous?” “Many of them are young men with only theoretical knowledge.”

This “theoretical knowledge” was contrasted with the “no nonsense” common-sense lived experience of loggers and settlers. For those individuals opposed to wholesale policy changes, “common sense” or “practical knowledge” arose from the intellectual necessity of living in wilderness. In all settler colonies, it meant an acquired understanding of the plants, animals and geology that were necessary to increase production. It privileged the idea that technology and science were to be instrumentally valued to increase production and decrease the need for labour. In contrast, “theoretical knowledge” underpinned more abstract or more far-ranging investigations that had few implications for actual lived experience.<sup>53</sup> As such, given the economic effects of controlled cutting,

50 Gregory Allen Barton “Empire Forestry and the Origins of Environmentalism” (PhD Thesis, Northwestern University, 1999) at 112.

51 Beattie, above n 47, at 174.

52 Loomis, above n 43, at 69.

53 Thomas R Cox “Americans and Their Forests: Romanticism, Progress, and

policy prescriptions supporting forest management and conservation were unworthy of consideration.

### 3.3 Objections Based on Settlement and Economic Development Norms

There were significant objections to scientific forestry management and conservation based on the normative framework that informed settlement and economic development in the settler colonies. These normative frameworks had political, economic and frontier-based aspects. One aspect already mentioned involved the underlying notion that removing trees had cultural connotations representing mastery of the environment and the “establishment of order” in the face of barbarism and wilderness.<sup>54</sup> This idea of order initially evoked European romantic notions of the countryside, domestic fields and open managed forests, but changed over the century as localist feeling spread regarding the value of the distinctiveness of local forests.<sup>55</sup>

Another normative sentiment that supported continued cutting concerned the fundamental ascription that the forest should be replaced by agriculture as part of a progressive historical imperative. Trees were a barrier to progress and development and a transitory stage of land use. From this perspective, the lumber industry served to clear and open an area up for agriculture and other forms of development. Law and policy should facilitate this progressive development rather than restrict it. This idea is evident in New Zealand Premier Richard Seddon’s 1894 claim mentioned above, or a 19th-century Wisconsin commentator who praised lumbermen for reducing “those wild wastes, into a land of productive industry”.<sup>56</sup> Of course, “improvement” of unsettled lands assumed “a model of civilization that put European agriculture at its pinnacle, and the ideals of material improvement” to drive development across the frontier.<sup>57</sup> It was the idea behind the American Homestead Act and various land Acts across other settler colonies that granted land to individuals with the provision that the grantees “improve” the land. Given the colonial urgency to quickly develop, the idea left little room for the material and ecological

Science in the Late Nineteenth Century” (1985) 29 *Journal of Forest History* 156 at 162–163.

54 Don Garden *Australia, New Zealand and the Pacific: An Environmental History* (ABC-CLIO, Santa Barbara, CA, 2005) at 89.

55 Paul Star “Native Forest and the Rise of Preservation in New Zealand (1903–1913)” (2002) 8 *Environment and History* 276.

56 Gen AG Ellis “The ‘Upper Wisconsin’ Country” *Journal of the Assembly of Wisconsin*, vol 2 (Wisconsin, Assembly, 1857) at 445 in TJ Lijima “The Great 19th-Century Timber Heist Revisited” (1 April 1990) Foundation for Economic Education <<https://fee.org/articles/the-great-19th-century-timber-heist-revisited/>>.

57 John C Weaver *The Great Land Rush and the Making of the Modern World, 1650–1900* (McGill-Queen’s University Press, Montreal, 2003) at 151.

costs of the rapid cutover. As noted by Sir FN Broome who advised the Select Committee on the Western Australia Constitution Bill in 1890: “The fact is that the whole of the south-west division is so thickly covered with forests that the great desire of everybody is to get rid of as many trees as they possibly can.”<sup>58</sup> Indeed, for many opponents of scientific forestry and reserves, improvement was a natural civilising process that should not be avoided:<sup>59</sup>

... the same mysterious law which appears to operate when the white and brown races come into contact — and by which the brown race, sooner or later, passes from the face of the earth — applies to native timber ... The moment civilization and the native forest come into contact, that moment the forest begins to go to the wall ...

Supporting this idea of improvement was a laissez-faire development model that celebrated smallhold farmers and the creative capacity of human beings when given broad opportunities.<sup>60</sup> These small land yeoman owners were conceived as being the backbone of an ideal democratic society. Their personal stake in the economic and political life of the polity protected it from “despots and plutocrats”.<sup>61</sup> This political and economic notion of improvement and progress further entrenched a faith in scientific and technological progress that could overcome material obstacles to human society. This progressive faith in humanity and technology was commented on by Hotchkiss in 1898:<sup>62</sup>

The past century has been an era of wood, the coming one is destined to be one of iron, brick and stone ... As to the finishing material of the future, the historian has seen fit to suggest but little.

The logical conclusion of such faith is that technology would address the issues of deforestation as they arise and policy innovation was unnecessary.

Ironically, this model based on a Lockean appropriation of the wilderness by an individual, justified a development model that facilitated the use of public assets to support large integrated timber operations. Farmers who took up land under the various land Acts tended to think that the timber stands on the

58 *Report from the Select Committee on Western Australia Constitution Bill, together with the proceedings of the Committee, House of Commons* vol 32 (1890) at 102.

59 (31 July 1874) 16 NZPD 351 (Sheehan).

60 Weaver, above n 2, at 81; James Willard Hurst *Law and the Conditions of Freedom in the Nineteenth-Century United States* (University of Wisconsin Press, Madison, 1984) at 5–8.

61 Cox, above n 53, at 159.

62 George Woodward Hotchkiss *History of the Lumber and Forest Industry of the Northwest* (GW Hotchkiss & Co, Chicago, 1898).



property were part of their patrimony, but across the various jurisdictions most logging was done by large companies. In exchange for the presumed benefits of more efficient decision-making and economies of scale, it was assumed that the public would benefit from the development related to cleared lands. This approach to development was in one sense expedient. Delegating activities to private actors in capital-poor, high-cost labour, colonial/frontier societies' development activities assisted cash-poor governments. The close cooperation between the government and the lumber sector (or entrepreneurs), supporters argued, also facilitated democracy and the creative use of private property for the purposes of economic development. As Gillis notes when referring to the "Timber Barons" of Ontario:<sup>63</sup>

These businessmen often recognized that their corporate wealth gave them greater power than the ordinary citizen but they pictured themselves as the "stewards" of that wealth and power and fervently believed that the business corporation was the "greatest and best expression of democratic institutions" on earth. They attacked violently those corporations which they felt had violated the public trust, particularly railway companies, Standard Oil and the Sugar Trust, as traitors to the true high aims of business.

On the other hand, the cooperation and delegation with large-scale enterprises undermined a more general concept of "public interest" and an appreciation for the unique aspects of the diminishing wild environment that gradually emerged over the course of the 19th century. This public interest was threatened as natural resource/forestry policies delegated to private actors "the initiative in defining values, opportunities, costs and hazards", while consigning the environmental, social and economic costs of logging operations and deforested land to the public sector.<sup>64</sup>

Nevertheless, throughout the century, the idea that forests should give way to agriculture, and that the law and private use of public resources in development activities would provide the firmest foundation for individual liberty and economic opportunity, for the most part prevailed.

### **3.4 Constitutional and Rights-based Objections**

The opponents of forest management also objected to proposed policies based on constitutional and rights-based arguments. The constitutional and rights arguments were generally of two types. First, arguments were based on

63 Robert Peter Gillis "The Ottawa lumber barons and the conservation movement, 1880–1914" (1974) 9 *Journal of Canadian Studies* 24.

64 Hurst, above n 26, at 251, 261–263.

constitutional text which limited the authority of the relevant government to address deforestation and forestry issues. For example, the Wisconsin Supreme Court held that the 1913 Wisconsin Forest Reserve scheme violated restrictions on state authority relating to internal improvements, debt and school forest reserves under the state constitution.<sup>65</sup> Second, in other instances the objections lay in an appeal to common law rights and the dangers increased governmental regulation could pose to individual rights. For example, the 1896 Ontario Forestry Report noted that using restrictive forestry legislation similar to that used in France would be inappropriate in Ontario. Such a European-derived scheme, the Report stated, would constitute an “arbitrary interference with what each man has always looked upon as his own to deal with as seemed to him best ...” and was not in accordance with Canadian ideas of liberty and freedom.<sup>66</sup>

In both senses, the objections ultimately were premised on the recognition that forest regulation entailed a major attitudinal change towards the free-market and laissez-faire minimalist government. As the 19th century advanced, the presumption that the market could be securely left to the invisible hand of self-interest and competition gave way to the idea that, although the market should still be free, the state must set forth firm rules to govern market behaviour and ensure that weaker economic actors not be exploited. In addition to this changing attitude towards the market, there was the objection to the idea that the minimalist laissez-faire state, which facilitated and subsidised the private use of public natural resources and eschewed public regulation of private property, was an appropriate developmental model. Bernhard E Fernow underscored the need for governmental responsibility in his forestry lectures at Queen’s University, Kingston, Ontario, in 1903:<sup>67</sup>

The interest in the future lies with the state, the state must interfere, wherever the interests of the future clearly demand it ... Special stress is to be laid upon the necessity of including the interests of the future community in this consideration, calling for the exercise of providential functions on the part of the state.

Nevertheless, individual right and use, individual decision-making and profit, and paradoxically, the subsidised use of public resources, was the dominant ideology of the day. As such, forest conservation measures, which both prohibited or conditioned forest cutting while restricting the availability of

65 *State ex rel Owen v Donald* 160 Wis 21 (1915).

66 *Ontario Forestry Report* 1896 at 41.

67 BE Fernow “Lectures on Forestry” in Ontario, Director of Forestry, *Annual Report, 1903* (Toronto, 1905) at 69.

public resources for private use, were seen as interfering with private rights and as an inappropriate use of public power. As Hancock noted:<sup>68</sup>

To the Australian, the State means collective power at the service of individualist “rights.” Therefore, he sees no opposition between his individualism and his reliance upon Government.

The fear from this perspective was that the regulation and taxation necessary to effectively regulate cutting was a thin wedge towards the despotic majoritarian use of coercive state power. As noted by Chief Justice Marshall of the Wisconsin Supreme Court in his opinion striking down the Forest Reserve scheme:<sup>69</sup>

History is illumined with its accomplishments and is distressingly clouded by its activities as well. That was appreciated by the wise men who designed the general outlines of our American system of constitutions and their greatest study was how to secure the maximum of its benefits with a minimum of its dangers. Exercise of it, unbridled by the safe barrier of reasonableness, all things considered, and attempted conservation of human rights might run mad at the peril of such oppressive taxation demands upon the people ... and might subvert the very purpose of civil government, leaving those sacred rights we cherish so much no longer existent in fact; only surviving in theory and memory. In its possibilities, whether the form of government be based on theory of individual rights or of mere privileged [sic] — lurks the menace of socialistic, autocratic, bureaucratic, and paternalistic despotism.

### 3.5 Economic and Political Opposition

Unsurprisingly, the most potent arguments in favour of unregulated logging were the significant economic impacts and associated political support. The presence of forests was a clear impediment to agriculture and settlement, which was believed to be the foundation of economic development. Settlers tended to see land clearance and use of the forest as a matter of right. While there were instances of farmers and small holders objecting to the lumber industry on the basis of their property rights, for the most part the cutover itself was not contested until late in the century.<sup>70</sup> At the same time, in each jurisdiction

68 WK Hancock *Australia* (E Benn, London, 1930) at 62; Richard N Rosecrance “The Radical Culture of Australia” in Louis Hartz (ed) *The Founding of New Societies* (Harcourt Brace Jovanovich, San Diego, 1964) 275 at 309–312.

69 *State ex rel Owen v Donald*, above n 65, at 138–139 per Marshall CJ.

70 Haring and Strutt, above n 33, at 126–128; Guy C Charlton and Ruby Haazen “Floating and Driving Timber in 19th Century New Zealand: Judge Francis D. Fenton and the Doctrine of Navigable Streams” (2011) 24 NZULR 649.

forestry was a major industry. It directly and indirectly provided employment, as well as timber for other activities such as mining, for houses, railways, fences and household items. In many local areas, it was the only economic activity, and sawmills were the only employer of any significance. The capital earned from the logging operations allowed mill owners to be investors in other developing industries such as banking and shipping. It was also an important source of governmental revenue. For example, at the turn of the century the forest industry employed approximately 244,000 people in Canada. In Ontario between 1867 and 1899, about 20 per cent of government revenue was obtained from the forests.<sup>71</sup> While Australia was less wooded, in some areas such as Southwest Australia or the eastern ranges logging was a locally dominant economic activity. In 1901, Queensland sawmills were the largest employers in the colony, employing approximately 9000 workers.<sup>72</sup> During the height of the lumber boom in Wisconsin, the economic impact of the industry was enormous: according to the 1890 US census, more than 23,000 men worked in Wisconsin's logging industry occupying nearly 450 logging camps, and another 32,000 worked at the 1000 sawmills. Logging and lumbering employed a quarter of all Wisconsinites working in the 1890s.<sup>73</sup> In 1910, the timber industry in Washington State was the largest employer with 63 per cent of the state's wage-earners directly or indirectly dependent upon it for jobs.<sup>74</sup> In New Zealand, the kauri logging industry was the primary engine of the New Zealand economy before the rise of agriculture, especially for Auckland.<sup>75</sup> As well as creating several thousand jobs (working as a bushman was one of the few occupations in rural Northland in the 19th century), the industry generated ancillary industries such as shipbuilding and construction.<sup>76</sup>

When opposed to the reservation of forestlands or the application of scientific management programmes this economic dominance created significant political opposition. Where there was a recognition that forest was to disappear, mill owners and sawyers nevertheless were often loath to cease or

71 Nelles, above n 32, at 18–20; See *Report of the Commission on Finance* (Toronto, 1900) at 6 and 24.

72 ES Hancock "The Queensland Timber Industry: Early History and Development" (1970) 9 *Journal of the Royal Historical Society of Queensland* 169.

73 Wisconsin Historical Society "Historical Essay, Logging: The Industry that Changed the State" <<https://www.wisconsinhistory.org/Records/Article/CS409>>.

74 Center for the Study of the Pacific Northwest "Seeing the Forest for the Trees: Placing Washington's Forest" <<https://www.washington.edu/uwired/outreach/cspn/Website/Classroom%20Materials/Curriculum%20Packets/Evergreen%20State/Section%20II.html>>.

75 Thomas Erlam Simpson *Kauri to Radiata: Origin and expansion of the Timber Industry in New Zealand* (Hodder & Stoughton, Auckland, 1973) at 223–225.

76 See JT Diamond and BW Hayward *Kauri Timber Dams, A Pictorial Account of the Kauri Timber Industry in New Zealand* (The Bush Press, Hong Kong, 1991).

modify their activities because the anticipated disappearance of the resource relieved them of the burden of the decision. Local and state-level representative institutions were often hostile to forest conservation. Walter Gill, Conservator of Forests, South Australia describes the political difficulties facing reformers in 1894:<sup>77</sup>

When this system [of scientific forestry] is adhered to timber felling never degenerates into timber slaughtering, but the pity of it all is that under existing conditions when an experienced forester in a State forest in these colonies decides enough timber had been cut and decides to reserve the rest the timber-getter gets up a memorial and secures the aid of the local Parliamentary representative, who depicts in moving tones to the central authorities the tragic circumstances of hardship under which the timber-getter is placed in being prevented from getting timber, which is of course, in his opinion, abundant, and the result is the faithful servant of the State takes a “back seat” as the reward of his disinterested service, while the sawyer or splitter gratifies his own self-interest at the State’s expense.

The result of such opposition was that most 19th-century proposals to manage forest cutover or preserve forest lands were not acted upon. Where protective policy did get implemented, the law often included enough flexibility to not adversely impact business activity. These loopholes were abetted by insufficient enforcement. Alternatively, where legislation did “ringfence” certain areas as protected or reserved, the political trade-off was often the release of more land for logging. For example, in 1899 the Western Australian government passed the Permanent Reserves Act 1899. The Act was the first parliamentary action to protect reserves in the colony. However, the classification system introduced by the Act rendered most timber reserves vulnerable to private logging as these forested areas could have their reserve protection revoked by the Minister at his/her discretion. It was often only when industry itself supported legislation, usually where the resource was fully exploited, or where the adverse effects of deforestation were so manifest that they could not be ignored, that state conservation-management programmes were fully implemented and enforced.

#### **4. ECHOES IN THE CLIMATE CHANGE DEBATE**

It is evident that the issues regarding the cutover and the destruction of the primeval forests of North America, Australia and New Zealand have some

77 JM Powell *Environmental Management in Australia, 1788–1914* (Oxford University Press, Melbourne, 1976) at 123.

cogency as we look to the climate change issues today. The historical objections to forest conservation and preservation policies anticipated various arguments voiced in opposition to climate mitigation policies. Like today, these arguments took place within a changing normative, socio-economic, political environment, which confronted a complex array of problems relating to unregulated economic development, social justice and environmental sustainability. Moreover, given the social, political, economic and environmental implications of shifting economic activity away from previously dominant historical practices and values, the policy initiatives towards conservation and preservation were heavily contested. This contestation involved disputes about the nature of the problem and the sufficiency of the data regarding contemporary impacts of cutting, and differing normative and legal approaches to economic development and governmental authority.

Like historical objections voiced against forest management, today many climate change policy opponents have objected to the alarmist and often apocalyptic discourse used to deny the underlying problem exists or suggest that the impacts of climate change (whether anthropogenic or geodynamic process) are not as broad as suggested. Hulme, for example, criticises climate change advocates for using terms such as “catastrophic” along with descriptors such as “chaotic”, “irreversible”, “rapid” to alter public climate change discourse.<sup>78</sup> From a sceptical climate change point of view, such language overstates the magnitude and assessment of the problem, which in fact does not merit the significant investments and lifestyle changes.<sup>79</sup> Where there are impacts due to climate change, it will neither undermine environmental sustainability nor human progress.<sup>80</sup>

Environmental claims are at best exaggerations, if not outright distortions and falsehoods ... [and] material conditions of life will continue to get better for most people, in most countries, most of the time, indefinitely.

These anti-alarmist arguments have underscored other objections, similar to anti-forest conservation arguments about “theoretical” knowledge concerning the environmental impacts of forest loss. While it is often difficult to precisely identify, the main concerns of these sceptics are that the anthropogenic effects

78 Michael Hulme “Chaotic World of Climate Truth” *BBC News* (online ed, London, 4 November 2006).

79 James S Risbey “The new climate discourse: Alarmist or alarming?” (2008) 18 *Global Environmental Change* 26.

80 Julian Simon *The Ultimate Resource* (Princeton University Press, Princeton, NJ, 1996).

on the climate are either negligible, or have not been empirically proven.<sup>81</sup> Inconsistencies in the evidence, the questionable robustness of the empirical evidence, and the inadequacies of climate modelling have been one set of objections. For example, Henderson and Hooper writing in a section of their article labelled “Climate Model Secret Sauce” note:<sup>82</sup>

It turns out that climate models aren't “plug and chug.” Numerous inputs are not the direct result of scientific studies; researchers need to “discover” them through parameter adjustment, or tuning, as it is called ... Modelers continue tuning climate models until they match a known 20th century temperature or precipitation record. And yet, at that point, we will have to ask whether these models are more subjective than objective. If a model shows a decline in Arctic sea ice, for instance — and we know that Arctic sea ice has, in fact, declined — is the model telling us something new or just regurgitating its adjustments?

Another set of objections, similar to that of forest conservation opponents, concerns the purported failure of climate change proponents to consider other non-climatic causal or super-intervening factors such as drought, fires, crop failures, human migration and species extinction when outlining the adverse effects of climate change.<sup>83</sup> McAneney, for instance, argues that the primary cause of the increasing destructiveness of Australian bush fires is due to poor land-use planning rather than climate change.<sup>84</sup> American President Trump used this notion when he dismissed climate change as a cause of the 2020 California forest fires by blaming California for failing to contain the blazes and remove fallen leaves. “When trees fall down after a short period of time, they become very dry — really like a matchstick”, Trump stated, “and they can explode ... it's just fuel for the fires”.<sup>85</sup> The conclusion drawn from this purported indeterminacy is that climate mitigation policies cannot be justified given the cost.

These objections feed into another set of rights-based notions that also impact the debate. From this viewpoint, the proposed economic and social changes to combat climate change necessarily entail an unjustified intrusion on

81 Willem Van Rensburg and Brian W Head “Climate Change Scepticism: Reconsidering How to Respond to Core Criticisms of Climate Science and Policy” (2017) SAGE Open 1 at 2–3.

82 David R Henderson and Charles L Hooper “Flawed Climate Models” *Defining Ideas, A Hoover Institution Journal* (online ed, Washington DC, 4 April 2017).

83 Michael Shellenberger “Why Apocalyptic Claims About Climate Change Are Wrong” *Forbes* (online ed, New York, 25 November 2019).

84 John McAneney “Climate Change and Bushfires — you're missing the point!” *The Conversation* (online ed, Parkville, Victoria, 1 November 2013).

85 Giovanni Russonello “A Trump-Biden Split Screen on Climate” *New York Times* (online ed, New York, 15 September 2020).

individual rights and liberties, with the concomitant potential for a tyrannical expansion of governmental authority. As noted by Maurice New, former advisor to Australian Prime Minister Tony Abbott:<sup>86</sup>

The real agenda [of climate change proponents] is concentrated political authority ... Global warming is the hook. It's about a new world order under the control of the UN. It is opposed to capitalism and freedom and has made environmental catastrophism a household topic to achieve its objective.

Similarly, in 2019, Rush Limbaugh, a prominent American conservative commentator, called the Green New Deal (a set of policy initiatives proposed to limit greenhouse gas emissions) a “trick”, arguing that “[young people] need to be called out” because they are “ruining people’s lives [and] ruining their futures all in the pursuit of power for themselves”.<sup>87</sup>

Anti-authoritarian objections are often paired with the idea that climate mitigation policies are not consonant with populist sentiments and narratives relating to individual choice and freedom. For example, individual automobile use and airplane travel, which account for a large percentage of greenhouse gas emissions, would need to be curtailed. However, in many countries powerful gas-guzzling engines and SUVs symbolise important aspects of national identity and pride: affluence, capability for individual expression, and autonomy and personal freedom.<sup>88</sup> In addition, anti-authoritarian rights-based objections sentiments have, in many cases, been transmogrified to become a salient aspect of the “culture wars”, echoing the disputes between “practical” and theoretical knowledge in the deforestation debate. As part of the culture wars, opposition to climate change has become part of a broader set of religious, political and moral/normative positions invoked in opposition to “elite”, “liberal” or “left” ideologies. Carlson Tucker, an American conservative commentator, exhibited this cultural aspect by tying climate change to systemic racism. “In the hands of Democratic politicians, climate change is like systemic racism in the sky”, Mr Carlson told viewers. “You can’t see it, but rest assured, it’s everywhere, and it’s deadly. And like systemic racism, it is your fault.”<sup>89</sup> In other instances, mitigation policies have been linked to opposition to religious values and

86 Maurice Newman “The UN is using climate change as a tool not an issue” *The Australian* (online ed, Surrey Hills, NSW, 8 May 2015).

87 Isabella Colello “Rushing to Conclusions” *The Years Project Online* <<https://theyearsproject.com/learn/news/rushing-to-conclusions-rush-limbaugh/>>.

88 Emily Atkin “Germany Has Proven the Modern Automobile Must Die” *The New Republic* (online ed, New York, 20 August 2018).

89 Michael M Grynbaum and Tiffany Hsu “‘Nothing to Do With Climate Change’: Conservative Media and Trump Align on Fires” *New York Times* (online ed, New York, 15 September 2020).



insular thought. For example, in a speech before the Australian Parliament newly elected Queensland MP Terry Young stated:<sup>90</sup>

[W]e want our children and grandchildren to hear the theories of evolution and creation, different religions, climate change advocates and climate change sceptics. I can say what we don't want for us and our kids is to be brainwashed with extreme left or right ideologies.

Of course, from another perspective such a reductionist approach is not unexpected. "Culture" is one of the many arenas in which dominant social groups seek to express and reproduce their interests and preferences. As such, climate change as part of the "culture wars" is another domain where various dominant and subordinate groups and interests engage in conflict to express their values and goals. Put another way, climate change scepticism is a defence "against paradigmatic changes to world dominant social values and institutions that guide global accumulation and concentration of power".<sup>91</sup>

Finally, like deforestation disputes, economic objections have underpinned many of the climate change arguments. Indeed, various economic interests have funded efforts to undermine climate change science because of their concerns about the impact of mitigation scenarios. Organisations such as the Heartland Institute and George C Marshall Institute have received carbon-based industry funding to promote alternative non-climate change viewpoints and sow doubt in climate science.<sup>92</sup> These efforts have significantly increased the number of climate change sceptics and politicised policy responses. The lobbying efforts are facilitated by the national and local dominance of many carbon-intensive industries enabling them to garner significant support in opposition to policies that affect their industries. For example, Alberta, Canada, a jurisdiction which is one of the planet's largest sources of climate warming pollution, has vigorously opposed federal efforts to address climate change due to its employment and wealth impacts. In agriculturally dependent New Zealand, the agriculture sector has been largely excluded from the emissions trading scheme, despite generating half of the country's total greenhouse gas emissions. The Australian hesitance to embrace climate change policies is in part due to the importance of the coal and mining industries. Politicians in the United States and Canada from areas where fossil fuels are important industries have effectively prevented wholesale policy changes. This support is enabled by the fact that the impacts of climate change are often most discernible in those areas outside of people's

90 Rebecca Gredley "Teach climate science, denial: new Liberal" *Canberra Times* (online ed, Canberra, ACT, 31 July 2019).

91 PJ Jacques "The Rearguard of Modernity: Environmental Skepticism as a Struggle of Citizenship" (2006) 6 *Global Environmental Politics* 78.

92 See Naomi Gredley *Merchants of Doubt* (Bloomsbury Press, New York, 2015).

local experience, or are too subtle or future-proofed to energise political support in the face of immediate job losses.

#### **4.1 Lessons for Climate Mitigation Advocates**

The arguments against climate mitigation policies outlined above, like the arguments against controlled cutting and forest preservation in the late 19th and early 20th centuries, have slowed policy innovation. They also give pause to the hope that we can effectively change policy before climate change becomes irreversible. For despite the best efforts of many individuals, the primeval forests of North America, New Zealand and Australia largely disappeared. Much of this cutover occurred after the environmental, economic and social impacts of deforestation were known. Indeed, the controversies regarding logging native and uncut forests, or the use of certain cutting methods such as clearcutting, occur in all these areas today. Such activity demonstrates not only the economic and political power of lumbering interests but also the ideational, social and economic dependence or desirability of certain types of natural resource exploitation across societies and in various localities. At the same time, they underscore the persistently contested nature of natural resource policies and the scientific justifications that support them.

Nevertheless, despite the apparent failure of many historical proponents to stop the cutover, there are some important insights that can point a way towards solving some problems related to climate mitigation policies. First, it is evident that climate change politics and policy choices, while grounded in scientific theorising and data, are not simply “scientific” issues. Conventionally science is “imagined as independent of the political process”, simply feeding information into the policy arena.<sup>93</sup> However, scientific facts and conclusions do not “speak for themselves” and cannot by themselves point to policy solutions. This is evident in both debates: opponents of forest conservation attacked scientific studies as “theoretical” and climate sceptics criticise climate science as “junk science”, “socially constructed” and politically biased.<sup>94</sup> These attacks have delayed a rational policy response, exacerbating the problem as well as making it difficult to address — by attacking the scientific process itself, the criticisms undermine the mechanisms and institutions through which we understand and address climate change. Nevertheless, proponents of climate mitigation should not necessarily double down on “objective” or “neutral” scientific theorising but should better acknowledge the contingent nature of the scientific enterprise

93 David Demeritt “The Construction of Global Warming and the Politics of Science” (2010) 91 *Annals of the Association of American Geographers* 307 at 308.

94 Charles Herrick and Dale Jamison “Junk Science and Environmental Policy: Obscuring Public Debate with Misleading Discourse” (2001) 21 *Philosophy and Public Policy Quarterly* 11.

while pointing out other values that are supported by climate mitigation policies.

Second, changing environmentally destructive policies is difficult where the policies are at variance with underlying economic and social value systems. A society and the political economy, despite often rapid technological and material developments, tends to evolve rather slowly and/or “drift” in a Hurstian sense.<sup>95</sup> As mentioned above, objections to both forest conservation policies and climate change policies are premised on the idea that the policies represent a rejection of underlying value systems. In the case of deforestation, the development paradigm, which presumed that economic development is best achieved through private decision-making and the “improvement” across the 19th-century political economy, supported an extractive resource-based model. As such, it had little concern for the contemporary adverse effects of the cutover or future sustainability. Similarly, the political discourse that has developed with the social and economic transformation through the ongoing fourth industrial revolution has entrenched a notion of economic growth, consumerism and political liberty that has privileged carbon-generating industries and lifestyles.

Nevertheless, in the appropriate circumstances rapid normative and material change can occur in a relatively short time. These changes in turn can have knock-on and feedback effects that can hasten additional innovation and normative change.<sup>96</sup> In all the jurisdictions under consideration, significant policy innovation in forestry management rapidly occurred at the end of the 19th and beginning of the 20th centuries. While these changes were precipitated by the empirical recognition of the adverse effects of forest cutover, they were also implemented where the adverse impacts of cutover were not fully appreciated. They were part of a larger package of policy innovations that arose from adverse effects of industrialisation (economic, social, environmental), changing attitudes towards public health, and a changing political economy. The policies, even where imperfectly enacted and implemented, hastened underlying changes in attitudes towards the market/state relationship and the public interest. Ironically, despite the revolutionary nature of the larger policy programme, the adoption of scientific management and forest preservation policies was framed as rational and incremental improvements to natural resource management, and only obliquely challenged the dominant economic values of the day. Similarly, climate mitigation policies have been most effective when they have been framed as not challenging the underlying capitalist political economy and liberalism. Such a framing lends greater weight to policy innovations that may be problematic or may engender dramatic lifestyle changes. At the same time,

95 See Hurst, above n 26.

96 David F Prindle “Importing Concepts from Biology into Political Science: The Case of Punctuated Equilibrium” (2012) 40 *Policy Studies Journal* 21.

it lessens the force of criticisms that can be directed at a particular policy or the underlying scientific justifications for such policies.

Third, despite the significant impacts of climate change policies on individual lifestyles, the problems do not involve a fundamental reconception of the state/market relationship. Historically, certain environmental problems have been existential threats to a society. In the deforestation debate, these existential threats required policy-makers and the wider society to reconceptualise public and private power and the public interest. Addressing the effects of deforestation and the adverse effects or externalities of the laissez-faire development model involved a reconceptualisation of the role of the state and market in human society and the idea of the public interest. Fortunately, the challenge of climate change, while existential, does not require a fundamental reconceptualisation of public power and the state/market relationship. Like the deforestation debate, climate mitigation policies do involve a reanalysis of the externalities associated with a particular developmental model as well as the sustainability of various development/economic strategies. Nevertheless, these changes do not necessarily constitute a fundamental paradigmatic challenge to either the market/state relationship, the capitalist development model, or liberalism.

Climate change policies do however engender a different conception of the public interest in that the notion of “public interest” from the perspective of climate mitigation policies telescopes the “global” into “national and local” in new ways. Forest conservation advocates operated within an environment where the normative community was either local or national. The wider “world-in-a-teacup” notion of public interest underpinning climate mitigation policies is a significant expansion of the “imagined community” of national public interest. It is a dramatic rearticulation of local community public interest which historically tends to focus on local infrastructure, schools, industries, amenities, pollution and governance. Given the extended timelines, and the seemingly intangible benefits climate mitigation policies bring to certain localities in light of real or perceived cost of the policies, it is often difficult to maintain public interest arguments based on this wider notion of public interest. Proponents have addressed this problem by focusing on the moral imperative of fighting climate change. Policy-makers have emphasised the technological and material benefits that would arise through national decarbonisation efforts. In either case, whether it be a moral imperative or an invocation to national benefit, such arguments have yet to provide a broad enough conception of individual, national and global public interest that could power policy innovation.

Fourth, in order to reconceptualise the notion of public interest and overcome objections, climate mitigation proponents need to develop a more coherent narrative. Forest conservation advocates only achieved their objectives when they were able to present a coherent narrative regarding the effects of deforestation on the environment *and* society. The difficulty in constructing the

climate mitigation narrative involves the nature of scientific knowledge and the difficulty of tying localised experiences into a larger narrative. The impact of climatic events, such as flooding, storms, drought and fire, are seemingly too random, and have yet to be integrated into a compelling narrative for many people. Be it for the material well-being of the nation, good governance, a call for philosophical or normative improvement, a necessary action to preserve political liberty, or a moral question, climate mitigation proponents have yet to weave a story where the local uniqueness and variability can be understood as part of a larger environmental and political-economic system. Historically, forest conservation policy change resulted from the creation of a broad narrative that linked the seemingly random environmental effects of deforestation with broader social justice and economic issues while tying these broader issues back into the local lived experience of people. The narrative then was used to implement policy changes that led to additional policy innovation and changes in attitudes. This approach is evident in American President Roosevelt's 1909 transmission message to the National Conservation Commission Report to Congress.<sup>97</sup>

The function of our Government is to insure to all its citizens, now and hereafter, their rights to life, liberty, and the pursuit of happiness. If we of this generation destroy the resources from which our children would otherwise derive their livelihood, we reduce the capacity of our land to support a population, and so either degrade the standard of living or deprive the coming generations of their right to life on this continent. If we allow great industrial organizations to exercise unregulated control of the means of production and the necessities of life, we deprive the Americans of to-day and of the future of industrial liberty, a right no less precious and vital than political freedom. Industrial liberty was a fruit of political liberty, and in turn has become one of its chief supports, and exactly as we stand for political democracy so we must stand for industrial democracy ... The freedom of the individual should be limited only by the present and future rights, interests, and needs of the other individuals who make up the community. We should do all in our power to develop and protect individual liberty, individual initiative, but subject always to the need of preserving and promoting the general good. When necessary, the private right must yield, under due process of law and with proper compensation, to the welfare of the commonwealth ... All this is simply good

97 Theodore Roosevelt *Report of the National Conservation Commission* (February 1909). *Special Message from the President of the United States transmitting a report of the National Conservation Commission*, with accompanying papers <[http://memory.loc.gov/cgi-bin/query/r?ammem/consrv:@field\(DOCID+@lit\(amrvvg38div5\)\)](http://memory.loc.gov/cgi-bin/query/r?ammem/consrv:@field(DOCID+@lit(amrvvg38div5)))>.

common sense. The underlying principle of conservation has been described as the application of common sense to common problems for the common good.

To date, climate change proponents have identified various environmental catastrophes as the result of climate change. There has been a concerted effort to present a meaningful story to justify climate mitigation efforts. While these efforts have had significant traction, they have neither been completely successful in tying together disparate and local climatic effects nor have they been successful in aligning climate change with fundamental political and social values, such as liberty and opportunity. These more protean political and social values will better support the vigorous implementation of climate mitigation policies. To date, as mentioned above, many climate change opponents have been able to appeal to these values to oppose mitigation policies but more needs to be done. The more effective and difficult approach, which is starting to be tried in some polities, is to tie climate change to a broader set of issues that concern individuals, nations and the larger expanded notion of the public good.

## 5. CONCLUSION

It is evident that many of the objections directed against climate change mitigation policies echo historical objections against forestry conservation in the 19th and early 20th centuries. Armed with these similar types of arguments, opponents of climate mitigation policies have challenged the justification and robustness of various scientific conclusions and policy justifications for a broad range of policies. They have also challenged the negative aspects of global warming. Like opponents of scientific forest management before the 20th century, these opponents of climate change policies have had some success in persuading the public that climate mitigation policies are unnecessary.

Yet, the historical results over the failure to robustly prevent deforestation should not give pause to those who wish to confront the problem of climate change. It is clear that uncontrolled cutting proceeded for far too long with disastrous environmental, economic and social impacts. Where in the mid-19th century settlers and loggers in Australia, Canada, New Zealand and the United States were confronted with vast expanses of easily harvestable prime timber, by the end of the century the forests were considerably diminished; replaced by farms, pastures and settlements, and all too often, uneconomic cutover scrub. By the end of the 19th century these issues had become too evident for policy-makers to ignore. Such a delayed response to climate change would have far greater consequences. Nevertheless, the move towards forest management and preservation was necessarily accompanied by a reconceptualisation of the market/state relationship and the public interest. Such

a totalising reconceptualisation is not necessary today. Opposition to climate change today is more political and economic and less ideational. Today, despite the uneven and often minimal local impacts, there is a consensus that climate change is occurring and that it is in fact “*a problem*”, not simply a transition to another form of economic activity as was presumed in the deforestation debate. This relative clarity as to the problem of climate change without a need to reconceptualise fundamental politico-economic and normative relationships across society provides more space and promise for climate change advocates.